

MEMORANDUM

To: Village President & Board of Trustees
c/o Gregory Jackson, Village Manager
Village of Long Grove

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Fr: Geoffrey L. Perry, P.E., Village Engineer

Date: March 31, 2022

Re: Checker Road Traffic Calming
Update Summary
Village of Long Grove

In response to traffic volume and safety concerns expressed by residents on Schaeffer Road and Checker Road, between North Arlington Heights Road and West Lake Cook Road, our office has summarized potential traffic calming options for your consideration. As previously discussed, motor vehicles are using these Village roads as a cut-through to bypass the intersection of Arlington Heights Road and Lake Cook Road. This has led to many complaints and reported incidents of unsafe conditions for children to get on/off the school bus, unsafe traffic conditions for bus drivers, residents' inability to exit their driveway, and speeding vehicles.

There are various traffic calming measures that could be implemented to address the concerns raised by residents and discussed at previous Board Meetings. Below is a summary of various options and locations for consideration:

Physical Traffic Calming Devices:

Traffic Choker:

A traffic choker narrows the driving lane which results in drivers reducing speed when traversing the choker. For the Checker Road/Schaeffer Road application, the existing pavement is narrowed from 24-feet to 18-feet for a length of 25-feet with 25-foot tapers on each side. Curb and gutter would be installed for the entire length with a wooden fence to physically direct drivers to slow down and center the vehicle through the choker. Stop signs will be installed on each side of the choker and vehicles will alternate passage, similar to the operation at the covered bridge and along Long Grove Road near Willow Valley Road.



Pros:

- Our office has estimated a construction cost of approximately \$25,000.
- This option could be removed, should it be deemed ineffective.
- This option will cause vehicles to stop at the choker and there may be an ancillary benefit as cut-through vehicles may abandon this the route given additional delays experienced at the choker.
- Local drivers are familiar with this type of traffic calming measure as there are chokers on Long Grove Road, at the Village's western limits, and on Cuba Road in Kildeer.
- The 18-foot width is adequate for emergency response and snow removal vehicles.

Cons:

- There is potential that vehicles may fail to stop at the choker, resulting in increased unsafe driving maneuvers.
- We were unable to find any published follow-up studies documenting the effectiveness of a choker, following installation.
- Chokers are generally considered for addressing vehicle speeds versus vehicle volumes.
- Emergency response vehicles would also have to stop at the choker.

- This option may create an increased queuing of vehicles and driver frustration on Checker Road due to drivers having to stop for oncoming traffic through the choker.

Option 2: Speed Table

A speed table is a raised, textured material across the entire width of a roadway that would act as a visual and physical “ramp” over a designated travel length, with the top of a speed table being a flat section. Signage, in accordance with the Manual of Uniform Traffic Control Devices (“MUTCD”) would be installed with this option. With the design speed of 30 mph on Checker Road, the speed table would require a total length of 32-feet and a minimum 10-foot flat section. The speed table would have an overall vertical elevation change of roughly 3-4 inches.



Pros:

- Our office has estimated a construction cost of approximately \$15,000 each. However, price varies with the amount of material (or slope) installed at each table.
- This option could be removed, should it be ineffective.
- Speed tables can provide decreased vehicle speeds (average 5 mph within vicinity) and increased safety for school bus routes and pedestrians.
- Vehicles do not need to come to a full stop.
- A speed table is safer and easier to maneuver for motorcyclists and emergency vehicles than a speed bump.
- Temporary options exist that can be mounted to the pavement should that be desirable prior to permanent construction.

Cons:

- The effectiveness of the speed table can vary greatly based on quantity, spacing, and slope of the ramps.
- Multiple speed tables may be needed to have a positive impact on driver speed and overall volume.
- Emergency response vehicles would have to slow down for the speed table.
- Vehicles do not need to come to a full stop.
- Snow plowing could damage the speed table, leading to increased maintenance.
- Adjacent residents will experience additional road noise from all vehicles that go over the speed table.

Note: There is a significant difference between a speed table and a speed bump. A speed bump is more abrupt and we do not recommend use of a speed bump on local, collector roads due to traffic volumes, speeds and snow removal operations.

Option 3: Speed Hump

A speed hump is similar to a speed table; however, it does not utilize the flat section at the top of the ramp. This option will still have a more gradual slope than a speed bump. All MUTCD required signage would be installed with this option. With the design speed of 30 mph on Checker Road, the speed table would require an overall length of 22 feet with an overall vertical elevation of roughly 3-4 inches.

Pros:

- Our office has estimated a construction cost of approximately \$7,500 each. However, price varies with the amount of material (or slope) installed at each table. Speed humps can also be pre-manufactured or installed with traditional asphalt or concrete pavement.



- This option could be easily removed, should it be ineffective.
- This option should provide decreased vehicle speeds (Average 5 mph within vicinity)
- Although vehicles do not need to come to a full stop, they will have a significant decrease in speed at the hump
- A speed table is safer and easier to maneuver for motorcyclists and emergency vehicles than a speed bump.
- Temporary options exist that can be mounted to the pavement should that be desirable prior to permanent construction.

Cons:

- The effectiveness of the speed hump can vary greatly based on quantity, spacing, and slope of the hump.
- Multiple speed humps may be needed to have a positive impact on driver speed and overall volume.
- May delay emergency vehicle response.
- All vehicles will slow down at different rates and to different extents.
- Can cause jarring, which could lead to loss of vehicle control.
- Emergency response vehicles would have to slow down for the speed table.
- Snow plowing could damage the speed hump, leading to increased maintenance.
- Adjacent residents will experience additional road noise from all vehicles that go over the speed hump.

Other Traffic Calming and/or Enforcement Options:

Increase Speed Monitoring Patrol

Speed monitoring, using radar to monitor and notify drivers of their speeds could be installed. Increased police enforcement would be needed to document vehicle speeds and issue violations.

Pros:

- Alerts drivers of their current speed.
- Provides a visual presence of enforcement.
- Monitoring radars can either be purchased, for less than \$3,500 each, or borrowed for a period of time.
- Additional police enforcement is at the discretion of the Village.
- No physical change of the roadway is proposed, thus no change to emergency vehicle or snow removal operations.

Cons:

- Radar devices show the vehicle speed but do not record information to issue a violation.
- Radar devices can be effective when in place. However, drivers typically revert to prior tendencies if/when the devices are removed.
- Radar can impact vehicle speed. However, this option does not address traffic/cut-through volume.
- This option has been utilized in the past and not resulted in “lasting” improvement.
- No physical change of the roadway is proposed, which has greatest impact on driver behavior.

Increased Signage or Markings

Several signage options exist that can be installed along the bypass route to help deter drivers. The signage may also help manage high traffic speeds and lead to more safe conditions for residents. Signage options include Speed Limit Signs, Electronic Speed Limit Display Sign, Blinking Stop Signs, Yield Signs, or other wayfinding signage to help deliver a message to drivers.



Pros

- Easy to install and relatively low cost at less than \$250 per traditional sign.

- Signs can be periodically moved to increase effectiveness or removed if not effective.
- No physical change of the roadway is proposed, thus no change to emergency vehicle or snow removal operations.

Cons

- Effectiveness is unknown and drivers can “ignore” the signs. Effectiveness may be low impact given limited observed success with signage installations in the Village.
- Too many signs can be considered signage clutter.
- Lighted signs will change the character of the corridor
- No physical change of the roadway is proposed, which has greatest impact on driver behavior.

Note: Cost of a solar powered speed radar costs approximately \$3,000.

Traffic Calming Location Alternatives:

Our office has reviewed alternate locations for traffic calming measures. The exhibits presented show a traffic choker option; however, these locations have been reviewed for any proposed traffic calming device. Below is a summary of the traffic calming location options reviewed by our office:

Location Alternate 1:

Alternate Location #1 is located on Checker Road, approximately 1,800’ east of the intersection at Checker Road and Schaeffer Road and 500’ west of the bridge that spans over Buffalo Creek. (This was the presented location at the January 25, 2022 Board Meeting.) The Lake County Forest Preserve District owns the property south of this location and the property north this location is private property / 1877 Checker Road.

Pros:

- This location is located approximately halfway along the cut-through route on Checker Road providing a suitable area to slow down traffic from either direction and deterring vehicles from reaching high speeds for the entire cut through route.
- This location will require motorists to slow down along the cut-through route and discourages use of adjacent subdivisions to avoid the traffic calming device.

Cons:

- As this area is located beyond most adjacent subdivisions on Checker Road, motorists may reach high speeds along the residential entrances near Schaeffer Road.
- If a choker is installed at this location, required signage would need to be extended in front of 18376 Checker Road which is in Vernon Township. The Village would need approval to install a sign in the right-of-way at this location.

Location Alternate 2:

Alternate Location #2 is located on Checker Road approximately 1,300’ east of the intersection at Checker Road and Schaeffer Road. The property south of this location is private property / 1858 Pheasant Run and the property north of this location is private property / 1865 Pheasant Run.

Pros:

- This location is located near adjacent resident subdivisions and would slow down traffic near Schaeffer Road, which has been cited as a high safety concern.
- This location should deter vehicles from reaching high speeds for long stretches of the cut through route.

Cons:

- This location may promote vehicles to use Pheasant Run as a turnaround during long waiting periods.
- This location may allow motorists to reach high speeds east of the traffic calming device.

Location Alternate 3:

Alternate Location #3 is located on Checker Road approximately 700' east of the intersection at Checker Road and Schaeffer Road. This alternate would be both appropriate for either a Traffic Calming Choker or Speed Hump. The South side of the road is near private property at 1854 Checker Road. The north side of the road is near private property at 1859 Cardinal Way.

Pros:

- This location is offers maximum clearance from driveways.
- This location is located near adjacent resident subdivisions and would slow down traffic near Schaeffer Road, which has been cited as a high safety concern.
- This location is located at a critical point between both Checker and Schaeffer Road which may deter drivers from using the cut through route.

Cons:

- This location may cause a back-up near the intersection of Checker Road and Schaeffer Road which could force northbound vehicles traveling on Schaeffer Road to turn left on to Checker Road.
- This location could cause a bottleneck near the intersection of Checker Road and Schaeffer Road which could cause drivers to perform unsafe driving maneuvers to turn around and head south back on Schaeffer Road.

Location Alternate 4:

Alternate Location #4 is located on Schaeffer Road approximately 1800' south of the intersection at Checker Road and Schaeffer Road. The property east and west of this location are owned by the Lake County Forest Preserve District.

Pros:

- This location is located at an at-grade pedestrian crossing which will improve safety in this area.
- This location does not impact any driveways or sidestreets.

Cons:

- This location is not located on Checker Road which was the main area of concern along the cut through route.
- The location may allow motorists to reach high vehicle speeds on Checker Road, after passing the traffic calming device on Schaeffer Road. It will not force reduced speeds in residential areas of high safety concern.
- Installing a traffic calming device in this area is subject to Vernon Township approval.

Traffic Calming Trial, i.e. Beta, Testing

In response to discussions regarding trial traffic calming devices at one or multiple of the locations described above, our office offers the following comments regarding a trial that would allow the Village to gather data on both the positive and negative effects of installed traffic calming devices.

Temporary Choker

A temporary choker could be installed with either water-filled jersey barriers (like was used at the covered bridge when the cover was removed) or concrete jersey barriers at any of the contemplated locations. Either type of jersey barrier can be installed with the geometry of a traffic choker and allow data gathering on the effectiveness of the traffic calming device.

The water-filled jersey barriers require purchasing and the usefulness of those used at the bridge needs to be confirmed. If additional barriers need to be purchased, we estimate this would cost less than \$1,000. The concrete jersey barriers can be rented; cost for a 2 week rental is approximately \$8,000.

The water-filled jersey barriers are less expensive; however, they can be more easily moved or tampered with. If the barriers are moved, that is useful information.

Our office recommends a single choker in this trial / beta test.

Temporary Pavement Markings

Temporary pavement markings could be installed at the desired traffic calming location. The pavement markings can follow the outline of the traffic choker and show that the road is narrowing to a single-lane.

The effectiveness of the pavement markings would be impacted by weather conditions, i.e. if the road is snow-covered. However, this installation is cost effective, at around \$500. We would recommend using preformed thermoplastic pavement markings as they could be mechanically removed.

Temporary Speed Humps

Rubberized temporary speed humps are also a candidate for trial testing and are low cost to procure and install, estimated at \$2,500 each. Any speed hump would need to be affixed to the pavement to avoid sliding and excessive maintenance issues during the trial period.

If the Village desires to pursue a trial / beta test of temporary speed humps, multiple locations could be considered.

Temporary Speed Table

Rubberized temporary speed humps are also a candidate for trial testing and are low cost to procure and install, estimated at \$5,000 each. Any speed hump would need to be affixed to the pavement to avoid sliding and excessive maintenance issues during the trial period.

If the Village desires to pursue a trial / beta test of temporary speed humps, multiple locations could be considered.